

Application No. 10/767,184
Amendment dated February 6, 2007
Reply to Office Action of September 8, 2006

Amendments to the Claims

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Original) An apparatus comprising:
 - a movable barrier operator;
 - a movable barrier operator wireless remote control;
 - an automatic image recognizer operably coupled to at least one of the movable barrier operator and the movable barrier operator wireless remote control.

2. (Original) The apparatus of claim 1 wherein the automatic image recognizer operably couples to the movable barrier operator.

3. (Original) The apparatus of claim 1 wherein the automatic image recognizer operably couples to the movable barrier operator wireless remote control.

4. (Original) The apparatus of claim 1 wherein the automatic image recognizer comprises an image capture device.

5. (Original) The apparatus of claim 4 wherein the image capture device comprises a digital image capture device.

6. (Original) The apparatus of claim 4 wherein the image capture device is remotely disposed with respect to the movable barrier operator.

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7. (Original) The apparatus of claim 6 wherein the image capture device is operably coupled to the movable barrier operator by a wireless link.

8. (Original) The apparatus of claim 6 wherein the image capture device is operably coupled to the movable barrier operator by a wireline link.

9. (Original) The apparatus of claim 4 wherein the image capture device is integrally disposed with respect to the movable barrier operator wireless remote control.

10. (Original) The apparatus of claim 4 wherein the image capture device is remotely disposed with respect to the movable barrier operator wireless remote control.

11. (Original) The apparatus of claim 10 wherein the image capture device is operably coupled to the movable barrier operator wireless remote control by a wireless link.

12. (Original) The apparatus of claim 4 wherein the image capture device comprises a stationary platform.

13. (Original) The apparatus of claim 4 wherein the image capture device comprises a movable platform.

14. (Original) The apparatus of claim 13 wherein the image capture device is responsive to movement instructions as sourced by the movable barrier operator.

15. (Original) The apparatus of claim 4 wherein the automatic image recognizer comprises a plurality of image capture devices.

16. (Original) The apparatus of claim 15 wherein at least one of the plurality of image capture devices is operably coupled to the movable barrier operator and another of the plurality of image capture devices is operably coupled to the movable barrier operator wireless remote control.

17. (Original) The apparatus of claim 15 wherein at least two of the plurality of image capture devices are each operably coupled to the movable barrier operator.

18. (Original) The apparatus of claim 15 wherein at least two of the plurality of image capture devices are each operably coupled to the movable barrier operator wireless remote control.

19. (Currently amended) The apparatus of claim 1 wherein the automatic image recognizer further comprises image recognition means for recognizing a substantially current image as matching information that corresponds to a predetermined image standard by at least a predetermined threshold. ~~Threshold could be calculated according to the image. If the image will be hard to recognize then threshold is lowered.~~

20. (Original) The apparatus of claim 19 wherein the automatic image recognizer further comprises a user adjustment interface such that a user can modify the predetermined threshold.

21. (Original) The apparatus of claim 1 wherein at least one of the movable barrier operator and the movable barrier operator wireless remote control have an image capture user interface such that a user can cause capture of at least one image to be used to facilitate provision of the predetermined image standard.

22. (Original) The apparatus of claim 1 wherein at least one of the movable barrier operator and the movable barrier operator wireless remote control further comprises a memory that contains information corresponding to at least one predetermined image standard.

23. (Original) The apparatus of claim 1 wherein the automatic image recognizer comprises a visible light automatic image recognizer.

24. (Original) The apparatus of claim 1 wherein the automatic image recognizer comprises a non-visible light automatic image recognizer.

25. (Original) A method comprising:

- providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator;
- providing information that corresponds to a substantially current image;
- determining whether at least some information in the substantially current image matches information in the at least one predetermined image standard by at least a predetermined threshold to provide a match detected signal;
- in response to the match detected signal, automatically initiating an action at at least one of a movable barrier operator and a movable barrier operator wireless remote control.

26. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises capturing an image and providing the image to the movable barrier operator.

27. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises capturing an image and providing the image to the movable barrier operator wireless remote control.

28. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises providing information that corresponds to a plurality of predetermined image standards regarding at least one position of a movable object with respect to a movable barrier operator.

29. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises providing information that corresponds to at least one predetermined image standard regarding a view of the movable object.

30. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises providing information that corresponds to at least one predetermined image standard regarding a view from a vantage point of the movable object.

31. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises storing the information at the movable barrier operator.

32. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises storing the information at the movable barrier operator wireless remote control.

33. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises modifying an original image regarding the position of the movable object with respect to the movable barrier operator.

34. (Original) The method of claim 33 wherein modifying an original image regarding the position of the movable object with respect to the movable barrier operator further comprises modifying the original image to simulate a specific environmental context.

35. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises:

- providing first information that corresponds to at least a first predetermined image standard regarding a position of a first movable object with respect to the movable barrier operator;
- providing second information that corresponds to at least a second predetermined image standard regarding a position of a second movable object with respect to the movable barrier operator.

36. (Original) The method of claim 35 and further comprising correlating the first information with a first identifier and correlating the second information with a second identifier.

37. (Original) The method of claim 25 wherein the movable object comprises a terrestrial vehicle.

38. (Original) The method of claim 25 wherein providing information that corresponds to a substantially current image further comprises capturing the substantially current image using an image capture device that is operably coupled to the movable barrier operator.

39. (Original) The method of claim 25 wherein providing information that corresponds to a substantially current image further comprises capturing the substantially current image using an image capture device that is operably coupled to the movable barrier operator wireless remote control.

40. (Original) The method of claim 25 wherein determining whether at least some information in the substantially current image matches information in the at least one predetermined image standard by at least a predetermined threshold to provide a match detected signal further comprises determining the predetermined threshold as a function, at least in part, of a user manipulable threshold adjustment setting.

41. (Original) The method of claim 25 wherein determining whether at least some information in the substantially current image matches information in the at least one predetermined image standard by at least a predetermined threshold to provide a match detected signal further comprises determining whether at least some information in the substantially current image matches information in the at least one predetermined image standard by at least a predetermined percentage to provide a match detected signal.

42. (Original) The method of claim 25 wherein determining whether at least some information in the substantially current image matches information in the at least one predetermined image standard by at least a predetermined threshold to provide a match detected signal further comprises:

- comparing information regarding a first substantially current image with information regarding a second substantially current image to determine whether the movable object and movable barrier operator presently appear to be drawing closer to one another.

43. (Original) The method of claim 25 wherein providing information that corresponds to at least one predetermined image standard regarding a position of a movable object with respect to a movable barrier operator further comprises:

- detecting user assertion of a wireless remote control transmit button;
- responding to the assertion by capturing an image to provide a captured image;
- using the captured image to provide the information that corresponds to the at least one predetermined image standard.

44. (Original) The method of claim 25 wherein automatically initiating an action further comprises causing the movable barrier operator wireless remote control to transmit a signal.

45. (Original) The method of claim 44 wherein causing the movable barrier operator wireless remote control to transmit a signal further comprises causing the movable barrier operator wireless remote control to transmit a command signal intended for the movable barrier operator.

46. (Original) The method of claim 25 wherein automatically initiating an action further comprises:

at the movable barrier operator wireless remote control:

- transmitting a first signal;
- monitoring for a predetermined response from the movable barrier operator;
- upon detecting the predetermined response, transmitting a second signal.

47. (Original) The method of claim 46 wherein monitoring for a predetermined response from the movable barrier operator further comprises using an image capture device to monitor for the predetermined response.

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48. (Original) The method of claim 46 wherein transmitting a second signal further comprises transmitting a movable barrier movement command signal.

49. (Original) The method of claim 25 wherein automatically initiating an action further comprises causing the movable barrier operator to automatically initiate movement of a movable barrier.

50. (Original) The method of claim 25 wherein automatically initiating an action further comprises causing the movable barrier operator to transmit a signal to the movable barrier operator wireless remote control.

51. (Original) The method of claim 50 wherein the signal comprises status information.

52. (Currently amended) The method of claim 25 wherein automatically initiating an action further comprises causing the movable barrier operator to automatically operate at least a first light in a predetermined manner.

53. (Original) The method of claim 25 and further comprising, in the absence of the match detected signal but in the presence of a wireless movable barrier movement remote control signal to the movable barrier operator, automatically storing a substantially current image of the movable object.

54. (Original) The method of claim 25 and further comprising determining a time to next provide information that corresponds to a next substantially current image.

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55. (Original) The method of claim 54 wherein determining a time to next provide information that corresponds to a next substantially current image further comprises determining the time as a function, at least in part, of similarity between at least two previous images.

56. (New) An apparatus comprising:

- a movable barrier operator;
- a movable barrier operator wireless remote control;
- an automatic non-biological image recognizer operably coupled to at least one of the movable barrier operator and the movable barrier operator wireless remote control.

57. (New) The apparatus of claim 56 wherein the automatic non-biological image recognizer operably couples to the movable barrier operator.

58. (New) The apparatus of claim 56 wherein the automatic non-biological image recognizer operably couples to the movable barrier operator wireless remote control.

59. (New) The apparatus of claim 56 wherein the automatic non-biological image recognizer comprises an image capture device.

60. (New) The apparatus of claim 59 wherein the image capture device comprises a digital image capture device.

61. (New) The apparatus of claim 59 wherein the image capture device is remotely disposed with respect to the movable barrier operator.

62. (New) The apparatus of claim 61 wherein the image capture device is operably coupled to the movable barrier operator by a wireless link.

63. (New) The apparatus of claim 61 wherein the image capture device is operably coupled to the movable barrier operator by a wireline link.

64. (New) The apparatus of claim 59 wherein the image capture device is integrally disposed with respect to the movable barrier operator wireless remote control.

65. (New) The apparatus of claim 59 wherein the image capture device is remotely disposed with respect to the movable barrier operator wireless remote control.

66. (New) The apparatus of claim 65 wherein the image capture device is operably coupled to the movable barrier operator wireless remote control by a wireless link.

67. (New) The apparatus of claim 59 wherein the image capture device comprises a stationary platform.

68. (New) The apparatus of claim 59 wherein the image capture device comprises a movable platform.

69. (New) The apparatus of claim 68 wherein the image capture device is responsive to movement instructions as sourced by the movable barrier operator.

70. (New) The apparatus of claim 59 wherein the automatic non-biological image recognizer comprises a plurality of image capture devices.

71. (New) The apparatus of claim 70 wherein at least one of the plurality of image capture devices is operably coupled to the movable barrier operator and another of the plurality of image capture devices is operably coupled to the movable barrier operator wireless remote control.

72. (New) The apparatus of claim 70 wherein at least two of the plurality of image capture devices are each operably coupled to the movable barrier operator.

73. (New) The apparatus of claim 70 wherein at least two of the plurality of image capture devices are each operably coupled to the movable barrier operator wireless remote control.

74. (New) The apparatus of claim 56 wherein the automatic non-biological image recognizer further comprises image recognition means for recognizing a substantially current image as matching information that corresponds to a predetermined image standard by at least a predetermined threshold.

75. (New) The apparatus of claim 74 wherein the automatic non-biological image recognizer further comprises a user adjustment interface such that a user can modify the predetermined threshold.

76. (New) The apparatus of claim 56 wherein at least one of the movable barrier operator and the movable barrier operator wireless remote control have an image capture user interface such that a user can cause capture of at least one image to be used to facilitate provision of the predetermined image standard.

77. (New) The apparatus of claim 56 wherein at least one of the movable barrier operator and the movable barrier operator wireless remote control further comprises a memory that contains information corresponding to at least one predetermined image standard.

78. (New) The apparatus of claim 56 wherein the automatic non-biological image recognizer comprises a visible light automatic non-biological image recognizer.

79. (New) The apparatus of claim 56 wherein the automatic non-biological image recognizer comprises a non-visible light automatic image recognizer.

80. (New) A method comprising:

- providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator;
- providing information that corresponds to a substantially current image;
- determining whether at least some information in the substantially current image matches information in the at least one predetermined non-biological image standard by at least a predetermined threshold to provide a match detected signal;
- in response to the match detected signal, automatically initiating an action at at least one of a movable barrier operator and a movable barrier operator wireless remote control.

81. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises capturing an image and providing the image to the movable barrier operator.

82. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises capturing an image and providing the image to the movable barrier operator wireless remote control.

83. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises providing information that corresponds to a plurality of predetermined non-biological image standards regarding at least one position of a movable non-biological object with respect to a movable barrier operator.

84. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises providing information that corresponds to at least one predetermined non-biological image standard regarding a view of the movable non-biological object.

85. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises providing information that corresponds to at least one predetermined non-biological image standard regarding a view from a vantage point of the movable non-biological object.

86. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises storing the information at the movable barrier operator.

87. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises storing the information at the movable barrier operator wireless remote control.

88. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises modifying an original image regarding the position of the movable non-biological object with respect to the movable barrier operator.

89. (New) The method of claim 88 wherein modifying an original image regarding the position of the movable non-biological object with respect to the movable barrier operator further comprises modifying the original image to simulate a specific environmental context.

90. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises:

- providing first information that corresponds to at least a first predetermined non-biological image standard regarding a position of a first movable non-biological object with respect to the movable barrier operator;
- providing second information that corresponds to at least a second predetermined non-biological image standard regarding a position of a second non-biological movable object with respect to the movable barrier operator.

91. (New) The method of claim 90 and further comprising correlating the first information with a first identifier and correlating the second information with a second identifier.

92. (New) The method of claim 80 wherein the movable non-biological object comprises a terrestrial vehicle.

93. (New) The method of claim 80 wherein providing information that corresponds to a substantially current image further comprises capturing the substantially current image using an image capture device that is operably coupled to the movable barrier operator.

94. (New) The method of claim 80 wherein providing information that corresponds to a substantially current image further comprises capturing the substantially current image using an image capture device that is operably coupled to the movable barrier operator wireless remote control.

95. (New) The method of claim 80 wherein determining whether at least some information in the substantially current image matches information in the at least one predetermined non-biological image standard by at least a predetermined threshold to provide a match detected signal further comprises determining the predetermined threshold as a function, at least in part, of a user manipulable threshold adjustment setting.

96. (New) The method of claim 80 wherein determining whether at least some information in the substantially current image matches information in the at least one predetermined non-biological image standard by at least a predetermined threshold to provide a match detected signal further comprises determining whether at least some information in the substantially current image matches information in the at least one predetermined non-biological image standard by at least a predetermined percentage to provide a match detected signal.

97. (New) The method of claim 80 wherein determining whether at least some information in the substantially current image matches information in the at least one predetermined non-biological image standard by at least a predetermined threshold to provide a match detected signal further comprises:

- comparing information regarding a first substantially current image with information regarding a second substantially current image to determine whether the movable non-biological object and movable barrier operator presently appear to be drawing closer to one another.

98. (New) The method of claim 80 wherein providing information that corresponds to at least one predetermined non-biological image standard regarding a position of a movable non-biological object with respect to a movable barrier operator further comprises:

- detecting user assertion of a wireless remote control transmit button;
- responding to the assertion by capturing an image to provide a captured image;
- using the captured image to provide the information that corresponds to the at least one predetermined non-biological image standard.

99. (New) The method of claim 80 wherein automatically initiating an action further comprises causing the movable barrier operator wireless remote control to transmit a signal.

100. (New) The method of claim 99 wherein causing the movable barrier operator wireless remote control to transmit a signal further comprises causing the movable barrier operator wireless remote control to transmit a command signal intended for the movable barrier operator.

101. (New) The method of claim 80 wherein automatically initiating an action further comprises:
at the movable barrier operator wireless remote control:

- transmitting a first signal;
- monitoring for a predetermined response from the movable barrier operator;
- upon detecting the predetermined response, transmitting a second signal.

102. (New) The method of claim 101 wherein monitoring for a predetermined response from the movable barrier operator further comprises using an image capture device to monitor for the predetermined response.

103. (New) The method of claim 101 wherein transmitting a second signal further comprises transmitting a movable barrier movement command signal.

104. (New) The method of claim 80 wherein automatically initiating an action further comprises causing the movable barrier operator to automatically initiate movement of a movable barrier.

105. (New) The method of claim 80 wherein automatically initiating an action further comprises causing the movable barrier operator to transmit a signal to the movable barrier operator wireless remote control.

106. (New) The method of claim 105 wherein the signal comprises status information.

107. (New) The method of claim 80 wherein automatically initiating an action further comprises causing the movable barrier operator to automatically operate least a first light in a predetermined manner.

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108. (New) The method of claim 80 and further comprising, in the absence of the match detected signal but in the presence of a wireless movable barrier movement remote control signal to the movable barrier operator, automatically storing a substantially current image of the non-biological movable object.

109. (New) The method of claim 80 and further comprising determining a time to next provide information that corresponds to a next substantially current image.

110. (New) The method of claim 109 wherein determining a time to next provide information that corresponds to a next substantially current image further comprises determining the time as a function, at least in part, of similarity between at least two previous images.